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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,619	05/31/2001	Goichi Katayama	FS.16969US0A	1768

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EXAMINER

CORRIGAN, JAIME W

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/870,619	Applicant(s) KATAYAMA, GOICHI	
	Examiner Jaime W Corrigan	Art Unit 3748	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-11, 17-19, 21, 22, 26-29, 35-40, 44-47, 53 and 54 is/are rejected.
- 7) ☒ Claim(s) 5-7, 12-16, 20, 23-25, 30-34, 41-43 and 48-52 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5, 7</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Specification

The abstract of the disclosure is objected to because it exceeds the 150 word maximum. Correction is required. See MPEP § 608.01(b).

Claim Objections

Claims 1-54 are objected to because of the following informalities: The examiner would like to point out that there are numerous spelling and grammatical errors throughout various claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 19 line 19, the use of the word "preferentially" is indefinite. Appropriate correction is required.

Claim 37 recites the limitation "the valve actuator" in line 8, page 23. There is insufficient antecedent basis for this limitation in the claim.

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 10-11, 17-19, 21-22, 28-29, 35-40, 46-47, 53-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura (PN 5,797,363).

Regarding claim 1 Nakamura discloses an internal combustion engine (See Abstract) for an outboard motor comprising at least one combustion chamber (Inherent in all internal combustion engines) formed by at least an engine body (See Figure 5 (12)), a cylinder head assembly (See Figure 5 (19)) and a piston (Inherent in all internal combustion engines) that moves relative to the engine body and the cylinder head assembly, a crankshaft (See Figure 3 (20)) that extends in a generally vertical direction and is coupled to the piston such that movement of the piston causes the crankshaft to rotate, a port (Inherent in all internal combustion engines) that is communication with the combustion chamber, a valve (See Figure 3 (17), (18)) moveable between open and closed positions of the port, a camshaft (See Figure 3 (15), (16)) that is journaled for rotation and extends generally parallel (See Figure 3 (15), (16), (20)) to the crankshaft, the camshaft including at least one cam (See Column 3 Lines 4-6) configured to open and close the valve, a rotor (See Figure 2 (35)) attached an upper end of the camshaft and being positioned for at least partial

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rotation (See Column 3 Lines 17-19) within a housing (See Figure 2 (39)), the rotor defining at least a first space (See Figure 2 (53)) and a second space (See Figure 2 (54)) within said housing, a driven member (See Figure 3 (26)) coupled to the housing, a drive member (See Figure 3 (25)) coupled to an upper end of the output shaft (See Figure 3 (20)), the drive member coupled (See Column 2 Lines 66-67, Column 3 Line 1) to the driven member such that rotation of the drive member is transmitted to the driven member, a control valve (See Figure 1 (32)) positioned within a common hydraulic passage (See Figure 4 (73), Column 4 Lines 14-16) having a first opening (See Figure 4 (69)) and a second opening (See Figure 4 (70)), and a first hydraulic passage (See Figure 4 (55)) and a second hydraulic passage (See Figure 4 (56)), the first hydraulic passage in communication with the first space (See Column 4 Lines 17-23) and the first opening (See Column 4 Lines 65-67) and the second hydraulic passage in communication with the second space (See Column 4 Lines 41-56) and second opening (See Column 4 Lines 65-67), the control valve (See Figure 4 (32)) being configured to selectively open and close the first and second openings (See Column 4 Lines 62-67, Column 5 Lines 1-3) such that hydraulic fluid is preferentially supplied to either the first space or the second space (See Column 5 Lines 4-22), the control valve also being positioned generally along an axis that is perpendicular (See Figure 1 (16), (32); Figure 4 (32)) to the camshaft.

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Regarding claims 2, 38 Nakamura discloses the control valve is also positioned generally along an axis that extends transversely (See Figure 1 (16), (32); Figure 4 (32), (12)) across the engine.

Regarding claims 3, 21, 39 Nakamura discloses the control valve (See Figure 1 (32), (16)) is positioned near an upper end of the camshaft.

Regarding claims 4, 22, 40 Nakamura discloses a bearing cap (See Figure 1 (33)) located near an upper end (See Figure 1 (16), (33)) of the camshaft, the bearing cap configured to cooperate with the cylinder head (See Figure 1 (19)) assembly so as to support the camshaft for rotation (See Column 2 Lines 55-57).

Regarding claims 10, 28, 46 Nakamura discloses a lubrication system (See Column 2 Lines 46-48) and lubrication passages, the lubrication passages including a supply passage (See Figure 1 (57), Column 4 Lines 14-16) that is in communication with the common passage (See Figure 4 (73), Column 4 Lines 14-16).

Regarding claims 11, 29, 47 Nakamura discloses the supply passage is defined, at least in part, in the cylinder head assembly (See Figure 1 (19), (57)).

Regarding claims 17, 35, 53 Nakamura discloses the port is an intake port (Inherent in all internal combustion engines) , the valve is an intake valve (See

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Column 2 Lines 55-57) and the camshaft is an intake camshaft (See Column 2 Lines 55-57).

Regarding claims 18, 36, 54 Nakamura discloses the port in an exhaust port (Inherent in all internal combustion engines), the valve in an exhaust valve and the camshaft is an exhaust camshaft (See Column 2 Lines 53-55).

Regarding claim 19 Nakamura discloses an internal combustion engine (See Abstract) for an outboard motor comprising at least one combustion chamber (Inherent in all internal combustion engines) formed by at least an engine body (See Figure 5 (12)), a cylinder head assembly (See Figure 5 (19)) and a piston (Inherent in all internal combustion engines) that moves relative to the engine body and the cylinder head assembly, a crankshaft (See Figure 3 (20)) that extends in a generally vertical direction and is coupled to the piston such that movement of the piston causes the crankshaft to rotate, a port (Inherent in all internal combustion engines) that is communication with the combustion chamber, a valve (See Figure 3 (17), (18)) moveable between open and closed positions of the port, a camshaft (See Figure 3 (15), (16)) that is journaled for rotation and extends generally parallel (See Figure 3 (15), (16), (20)) to the crankshaft, the camshaft including at least one cam (See Column 3 Lines 4-6) configured to open and close the valve, a rotor (See Figure 2 (35)) attached an upper end of the camshaft and being positioned for at least partial rotation (See Column 3 Lines 17-19) within a housing (See Figure 2 (39)), the rotor defining at

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least a first space (See Figure 2 (53)) and a second space (See Figure 2 (54)) within said housing, a driven member (See Figure 3 (26)) coupled to the housing, a drive member (See Figure 3 (25)) coupled to an upper end of the output shaft (See Figure 3 (20)), the drive member coupled (See Column 2 Lines 66-67, Column 3 Line 1) to the driven member such that rotation of the drive member is transmitted to the driven member, a control valve (See Figure 1 (32)) positioned within a common hydraulic passage (See Figure 4 (73), Column 4 Lines 14-16) having a first opening (See Figure 4 (69)) and a second opening (See Figure 4 (70)), and a first hydraulic passage (See Figure 4 (55)) and a second hydraulic passage (See Figure 4 (56)), the first hydraulic passage in communication with the first space (See Column 4 Lines 17-23) and the first opening (See Column 4 Lines 65-67) and the second hydraulic passage in communication with the second space (See Column 4 Lines 41-56) and second opening (See Column 4 Lines 65-67), the control valve (See Figure 4 (32)) being configured to selectively open and close the first and second openings (See Column 4 Lines 62-67, Column 5 Lines 1-3) such that hydraulic fluid is preferentially supplied to either the first space or the second space (See Column 5 Lines 4-22), the first (See Figure 4 (69)) and second openings (See Figure 4 (70)) being positioned generally at a common engine elevation (See Figure 4 (69), (70)).

Regarding claim 37 Nakamura discloses an internal combustion engine for an outboard motor comprising an engine body (See Figure 3 (12)), a piston (Inherent in all internal combustion engines) movable relative to the engine body,

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a crankshaft (See Figure 3 (20)) that extends in a generally vertical direction and is journaled for rotation by the piston, the engine body, the piston and a cylinder head assembly together defining a combustion chamber (Inherent in all internal combustion engines), a port (Inherent in all internal combustion engines) in communication with the combustion chamber, a valve (See Figure 3 (17), (18)) movable between open and closed positions of the port, a camshaft (See Figure 1 (16)) that extends generally parallel to the crankshaft and is journaled for rotation to actuate the valve in a set angular position (See Column 3 Lines 4-6), a variable valve timing mechanism (See Figure 1 (11)) arranged to set the valve actuator to an angular position between a first angular position (See Column 5 Lines 18-23) and a second angular portion (See Column 5 Lines 11-18), the first angular position being advanced (See Column 5 Lines 18-23) as compared to the second angular position, the variable valve timing mechanism comprising a setting section (See Figure 2 (39), (35), (37), (53), (54)), a supply section (See Figures 1, 4 (55), (56), (57)) and a control section (See Figures 1, 4 (32), (75), (69-74)), the section comprising a control valve (See Figures 1, 4 (32)) that is disposed on along an axis that is generally perpendicular (See Figures 1, 4 (16), 32)) to the camshaft.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

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be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-9, 26-27, 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (PN 5,797,363) in view of Deguchi (PN JP 11132016 A).

Nakamura discloses the invention as recited in claims 1, 19, 37 above, however, fails to disclose a control valve extending through a cylinder head cover and a lip between the control valve and the cylinder head cover.

Deguchi teaches that it is conventional in the art to utilize a cylinder head cover (See Figure 4 (1)) and wherein the control valve (See Figure 4 (12)) extends through an opening (See Figure 4 (16), Solution Line 9-11) in the cylinder head cover and the opening in the head cover includes a lip (See Figure 4 (28)) and a sealing member (See Figure 4 (39)) positioned between the lip and the control valve.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the control valve extending through the cylinder head cover taught by Deguchi in the Nakamura device since it would improve accessibility to the control valve.

Allowable Subject Matter

Claims 5-7, 12-16, 20, 23-25, 30-34, 41-43, 48-52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

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independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gotou et al. (PN 5,694,912), Fujiwaki (PN 5,901,674) disclose similar variable valve timing structures.

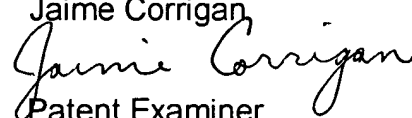
Any inquiry concerning this communication from the examiner should be directed to Examiner Jaime Corrigan whose telephone number is (703) 308-2639. The examiner can normally be reached on Monday - Friday from 8:30 a.m. – 6:00 p.m. 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (703) 308-2623. The fax number for this group is (703) 308-7763.

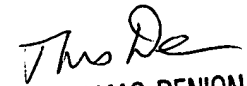
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

JC

January 9, 2003

Jaime Corrigan

Patent Examiner

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